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AUTHOR Hearn, James C.
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ABSTRACT

Nontraditional styles of postsecondary enrollment were assessed: delaying postsecondary enrollment for a year or more beyond high school graduation, enrolling part-time, or entering non-degree-granting programs. Part-time attendance was defined as pursuing a courseload below half-time. The sample consisted of 8,464 recent U.S. high school graduates and was drawn from the 1980 and 1982 waves of the High School and Beyond survey of 1980. Based on discriminant analysis, support was found for the hypothesis that students choosing nontraditional enrollment options were those of modest academic preparation, ability, and achievements. Students pursuing nontraditional timing, load, and institutional options also tended to be lower in socioeconomic status. The effects of student race and gender on choice of enrollment option were mixed. Blacks were likely to enroll late, but unlikely to enroll part-time. Women were unlikely to enroll late. Men more frequently pursued the nontraditional timing option. Included are 45 references. (SW)

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An Exploration of Nontraditional Postsecondary Enrollment Patterns

James C. Hearn

University of Minnesota

Paper for Presentation at the Annual Meeting
of the Association for the Study of Higher Education,
Baltimore, November 21-24, 1987

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College Station, TX 77843
(409) 845-0393

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An Exploration of Nontraditional Postsecondary Enrollment Patterns

Abstract

This research assessed a variety of hypotheses regarding nontraditional styles of postsecondary enrollment, i.e., delaying postsecondary enrollment for a year or more beyond high school graduation, enrolling part-time, or entering non-degree-granting programs. The research was conducted on a sample of 8464 recent U.S. high school graduates and employed statistical models containing both academic and non-academic characteristics of the students. Among the findings are suggestions that socioeconomically disadvantaged graduates are disproportionately pursuing nontraditional enrollment options. The implications of these results are discussed.

An Exploration of Nontraditional Postsecondary Enrollment Patterns

Traditional college enrollment patterns in the U.S. have been eroding in recent years. Research on the topic (U.S. Department of Education, 1985; Carnegie Foundation, 1985; Frances, 1985; Change Magazine , 1986) suggests that four trends are particularly prominent. First, different kinds of students are attending postsecondary institutions. For example, the enrollments of women have been increasing. Second, growing numbers of college-bound high school graduates are choosing to postpone college entry rather than enter an institution in the fall following high school graduation. Third, increasing numbers of students are attending school part-time. Fourth, students are choosing somewhat different kinds of educational offerings. Notably, enrollments are expanding in vocational and for-profit proprietary institutions.

The relationship of the first trend to the second, third, and fourth trends was of special interest for the project described here. Focusing upon recent U.S. high school graduates, the research explored the student background characteristics associated with a) delaying enrollment for a year or more beyond high school graduation, b) enrolling part-time, and c) enrolling in non-degree granting postsecondary institutions. Specifically, the project investigated the ways in which graduates' gender, race, socioeconomic status, and other characteristics relate to nontraditional postsecondary attendance patterns, once the graduates' academic programs, ability, and achievements have been taken into account. The project paid particular attention to the extent to which female, minority, and socioeconomically disadvantaged recent high school graduates are pursuing nontraditional attendance options.

Theoretical Framework

The importance of this research stems from the role of enrollment timing, student courseload, and institutional context in processes of social and economic attainment. Demographic, socioeconomic, and legislative developments of the past twenty years have lowered the barriers to postsecondary access to such an extent that virtually any high school graduate can enter the postsecondary system (Clark, 1983), but many analysts (e.g., Karabel, 1972) have argued that these developments may be serving to increase the career importance of the human and material resources of the specific institution one attends. For similar reasons, other analyses (e.g., Marini, 1984) have suggested that issues of academic progress (i.e., courseload and the timing of college entry) may also be increasing in importance. Supporting this argument are findings that academic progress and institutional context significantly influence college graduates' eventual educational, social, and economic attainments (Solmon, 1975; Smart, 1986; Tinto, 1980; Marini, 1984). If timing, courseload, and context variations in attendance patterns indeed play an influential role in attainments, then attention to the determinants of those variations seems warranted. Of special importance from a policy and equity perspective is better understanding of the factors contributing to any timing, courseload, or context differences between advantaged and disadvantaged high school graduates.

It should be noted that there have been a number of studies of the determinants of variations in the nature of institution attended (e.g., Karabel and Astin, 1975; Hearn, 1984), but none which have sought to blend that focus with a focus on entry timing and courseload. Such a joint focus clearly seems warranted, however: there are quite plausible interactions between the three factors. For example, beginning attendance part-time at a four-year institution two years after graduation may have no greater a short or long term "payoff" in human capital terms for a given student than full-time attendance at a

proprietary institution immediately after graduation. In the former case, the student attending the "higher quality" school is likely to enter into his/her main earnings stream of adult employment six or more years after he or she would in the latter case.

The literature on college attendance determinants suggests that potential influences on college attendance patterns include academic program, academic ability, academic achievement, gender, race/ethnicity, and socioeconomic status (e.g., see Karabel and Astin, 1975; Jackson, 1978, 1982; Hossler, 1984). That literature provided the basis for several orienting hypotheses for the study. The "marginality hypothesis" suggests that students choosing nontraditional enrollment options (i.e., students deferring enrollment, enrolling part-time, or enrolling in non-degree granting institutions) are those whose modest academic ability and achievements in secondary school distance them from those in the college-going population who never doubted they would attend some postsecondary institution. The marginality hypothesis may relate directly to those students Jackson (1978) has termed "whethers": individuals who debate the merits of college attendance versus nonattendance more seriously than Jackson's "whiches" and "nots". The "socioeconomic context hypothesis" suggests that nontraditional enrollment may be rooted in class socialization or in pressing financial concerns. A pressured socioeconomic context might be indicated not only by basic parental SES levels but also by family size, since the greater the number of dependents the lesser the financial or educational resources available for any one of them, all else equal. The "ascriptive hypothesis" suggests that some students choosing nontraditional enrollment options may do so because of pressures relating to traditionally ascribed social roles (for example, married women might face special constraints on full-time attendance).

Research Design

The project utilized longitudinal national data on the background characteristics and college attendance behaviors of the high school graduating class of 1980. Dependent variables indicated three enrollment characteristics: the graduates' postsecondary enrollment timing, courseload, and institution type characteristics. The analysis was organized around a sequence of steps. The first step examine the determinants of delayed enrollment, among those who did indeed attend within two years of high school graduation. The second step examined the determinants of part-time enrollment, again among those who did attend. The third step examined the ways in which enrollment timing and courseload together discriminate among all respondents, including both attenders and non-attenders. The fourth and final step involved the most complex aspect of the analysis: joint consideration of all three dependent variables. This part of the analysis was organized around the idea that high school graduates may take any one of thirteen paths in the two years following high school graduation: non-attendance, or any of the twelve attendance combinations derived from two possible courseload levels (part-time or full-time), two possible timing patterns (traditionally timed attendance or delayed attendance), and three possible institutional types (non-degree-granting institution, two-year institution, or four-year institution). A variety of independent variables, as outlined earlier, were assessed as to their association with these enrollment patterns.

Methods : The analytic approach was oriented toward examining in tentative fashion the influences prompting nontraditional enrollment patterns. Because the independent variables for the study (e.g., academic achievement and socioeconomic status) tend to be correlated, simple descriptive statistics would not provide any guidance as to causation. A multivariate approach is superior, although in the present study such an approach is also somewhat limited in its

causal implications. Path analysis, an ordinary least squares [OLS] regression technique, would have been most useful for supporting causal inferences, but the dependent variables for the study (enrollment patterns) are categorical and the proportions pursuing the various enrollment types are very unevenly distributed, so it was necessary for the research to rely on techniques other than OLS regression (see Hanushek and Jackson, 1977).

When the dependent variable was dichotomous, logistic regression techniques were employed. Although logistic regression does not allow strong and clear inferences regarding causation (see Jackson, 1981), its use in blocked fashion (i.e., contrasting the results for equations containing only background factors with those for equations containing the full array of background and mediating factors) does allow weak inferences regarding the direct and total effects of the various variables, in the fashion of path analysis (Marini, 1984). In addition to the logistic regression approach, discriminant analysis was employed for unordered polychotomous specifications of the dependent variables, to ascertain multivariate statistical functions distinguishing among the survey respondents. Although a special form of logistic regression could have been employed instead under such circumstances (see Press and Wilson, 1978; Begg and Gray, 1984; Harrell and Lee, 1985), discriminant analysis was chosen for its greater ease of interpretation, lower cost, and rough comparability in results to those for logistic regression. Sample weighting was employed in all analyses, due to the oversampling of certain populations in the data set used here (see below).

Data : The sample for the project was drawn from the 1980 and 1982 waves of the comprehensive "High School and Beyond" [HSB] survey of 1980 American high school seniors and their educational outcomes (NORC, 1983). The 1982 data provided information on whether or not students had enrolled, the timing of their enrollment, their courseload, and where they enrolled (by

institution code). To ascertain the nature of the institution attended, the student-level data on institution codes were matched with data on 1980-81 institutional characteristics from the Higher Education General Information Survey [HEGIS] (National Center for Education Statistics, 1983).

Variables and Their Indicators : The dependent variables were defined as follows. Traditionally timed attendance was defined as initial postsecondary attendance within one year of high school graduation, whereas nontraditionally timed attendance was defined as initial attendance at some point between one year and two years after graduation (the two-year cutoff was imposed by the data set limitations - a longer period would have been desirable). Part-time attendance was defined as pursuing a courseload below half-time. Dummies were constructed for the above two indicators, with a score of one indicating late (nontraditionally timed) attendance and part-time attendance, respectively. The institutional type indicator had three possible responses: attendance at a four-year degree-granting college, attendance at a two-year degree-granting college, and attendance at a non-degree-granting institution. For the discriminant analyses, the distinct enrollment indicators were combined into unordered categories.

The independent variables for the study were those familiar in studies of enrollment determination: race, gender, parental socioeconomic status, family size, high school program (i.e., college preparatory track), tested ability, and high school performance. The indicators for race and gender were coded as dummies. For race, 1 = black and 0 = other. For gender, 1 = male. Parental socioeconomic status [SES] was indicated by a composite score based on five components: father's education, father's occupation, mother's education, mother's occupation, family income, and material possessions in the household. The value was the simple average of the non-missing components, after each component score was standardized to a zero mean. Family size was indicated by a

scale (constructed from two separate HSB items) for the number of siblings, where 1 = one sibling, 2 = two siblings, and so forth up to 5, where 5 = 5 or more siblings. The indicator of tested ability was a composite score for a standardized test administered to HSB respondents and normed nationally to a mean of 50. The score is the average of reading, vocabulary, and mathematics scores. The indicator for high school program was coded as a dummy where 1 = an academic (college preparatory) curriculum. The indicator of high school performance was based in self-reported average grades, from an item where: 8 = mostly A's (or a numerical average of 90 to 100), 7 = about half A's and B's (or 85-89), 6 = mostly B's (or 80-84), 5 = about half B's and C's (or 75-79), 4 = mostly C's (or 70-74), 3 = about half C's and D's (or 65-69), 2 = mostly D's (or 60-64), and 1 = mostly D's (or below 60). For more details on the indicators used in the study, see NORC (1983).

Results

Table 1 presents the results for the logistic regressions for attendance timing. A background-characteristics-only model and a "full" model containing both background and academic characteristics were assessed. Only students who enrolled were included in the analysis. The results suggest that those who delayed attendance, rather than attend immediately after high school graduation, tended to be males from lower SES backgrounds, tended to have been enrolled in nonacademic high school tracks, and tended to have lower tested ability and grades. In addition, the results for the background-only model reveal that blacks were especially likely to enroll late, although this tendency was fully mediated through blacks' lower levels of academic credentials. It should be noted, however, that the R-squared (more precisely, its logistic regression equivalent) was only .06 for the full enrollment timing model.

[Insert Table 1 About Here]

Table 2 presents the results for the logistic regression for courseload. As above, two models were assessed and only students who enrolled were included in the analysis. The results suggest that those who pursued part-time attendance differed from those attending full-time in that they were more likely to be non-black, more likely to come from lower-SES background, more likely to have graduated from a nonacademic track, and less likely to have done well in their test scores and grades.

[Insert Table 2 About Here]

The results for academic and SES characteristics' effects on part-time enrollment resemble the results for those characteristics' effects on later enrollment. The effects of race and gender differ markedly, however, for the two outcomes. Male graduates were especially likely to enroll later, but there were no gender differences in courseload patterns. Also, non-black graduates were especially likely to enroll part-time, but there were no race differences uncovered in the full enrollment timing equation. What is more, in the background model for timing, black graduates were found to be especially likely to enroll late.

Table 3 presents descriptive data on the nature of the students choosing the different enrollment timing and courseload options. The two most populous groups were the two most traditional options: non-attendance and attendance immediately after high school graduation. A weighted total of 85 percent of the graduates fell into one of these two groups, with the remaining 15 percent split roughly evenly among the three nontraditional timing and load options. Over the range from non-attenders to part-time late attenders to full-time immediate

attenders, SES, academic ability, and academic accomplishments tended to rise. Family size tended to shrink. The patterns for race and gender were more mixed. All univariate F's for between-group differences were significant, however, as was the multivariate (MANOVA) F.

[Insert Table 3 About Here]

Accordingly, the two nontraditional enrollment patterns of delayed enrollment timing and part-time courseload were next considered simultaneously in a discriminant analysis, the results of which are reported in Table 4 and Figure 1. Although three functions were significant discriminators, the canonical R-squared for the third function was under .005, so it does not merit discussion here. The first function was clearly primary in discriminating among the five groups, with a canonical R-squared of .28. Table 4 suggests that this function was based especially in group differences in SES and academic characteristics, and Figure 1 reveals that the function was particularly effective in discriminating between non-attenders (Group 1) and immediate full-time attenders (Group 5). The latter were appreciably higher in SES and academic qualifications. Function 2, a far less powerful discriminator, focused on race, gender, SES and grades differences. This second function was particularly successful in discriminating between late part-time attenders (Group 2) and late full-time attenders (Group 4). The latter scored low on the function, and were somewhat more likely to be black, to be male, to be from above-average-SES backgrounds, and to have relatively modest high school grades, taking other factors into account. These results parallel those earlier presented in Tables 1 and 3.

[Insert Table 4 About Here]

[Insert Figure 1 About Here]

Because the choice of an institution to attend may be closely related to courseload and attendance timing decisions, the sample was next divided into thirteen categories based upon the conjunction of timing, load, and institutional type considerations. The descriptive data for these categories are presented in Table 5. The most populous options were non-attendance and immediate full-time attendance at a four-year institution. Five categories comprised one percent or fewer of the population, respectively: late part-time attendance at a vocational institution, immediate part-time attendance at a vocational institution, late part-time attendance at a two-year institution, late part-time attendance at a four-year institution, and immediate part-time attendance at a four-year institution. As before, all univariate F's for between-group differences were significant, as was the multivariate F. Within the four-year institutions category, over the range from part-time late attenders to full-time immediate attenders, SES, academic ability, and academic accomplishments tended to rise, while family size tended to decrease. Within the other institutional groups, however, patterns among these factors were less consistent. For example, within those attending two-year colleges, it was the students enrolling later but full-time who tended to be lowest in SES and academic qualifications.

[Insert Table 5 About Here]

To delve into the group differences more systematically, a second discriminant analysis was run. The results for that analysis are presented in Table 6 and Figure 2. Three functions were significant discriminators, although the first, with a canonical R-squared of .38, was clearly superior in its

discriminating power. Those scoring higher on that function tended to be those higher in SES, academic ability, and academic accomplishments. Figure 2 suggests that the function was especially successful in discriminating among non-attenders (Group 1) and immediate, full-time attenders at four-year institutions (Group 13), but three rough clusters of students appeared in the findings for the function. With the lowest scores on the function, non-attenders were similar to late full-time attenders at vocational institutions (Group 3). Late part-time attenders at vocational institutions (Group 2), immediate part-time attenders at those institutions (Group 4), immediate full-time attenders at those institutions (Group 5), late full-time attenders at two-year institutions (Group 7), and late part-time attenders at four-year institutions (Group 10) formed a second cluster scoring slightly higher than the first on the function. A third, still higher-scoring cluster consisted of late part-time attenders at two-year institutions (Group 6), immediate part-time attenders at two-year institutions (Group 8), and immediate full-time attenders at two-year institutions (Group 9). The remaining three groups were not clustered. Instead, they were spread along positive side of the Function 1 axis, with immediate part-time attenders at four-year institutions (Group 12) scoring somewhat lower than late full-time attenders at such institutions (Group 11), and both scoring lower than immediate full-time attenders at such institutions (Group 13).

[Insert Table 6 About Here]

[Insert Figure 2 About Here]

The second and third significantly discriminating functions merit less attention due to their appreciably lower power. They added very little to the discriminatory accuracy of the first function. Those scoring higher on the

second tended to be female, nonblack, from lower-SES backgrounds, from smaller-sized families, and from nonacademic tracks (see Table 6). Figure 2 suggests that high scorers on the function tended to be attenders at two-year institutions (Groups 6, 8, and 9), whereas those scoring lowest on the function tended to be late-enrolling attenders at four-year institutions (Groups 10 and 11). An exception to this pattern was posed by Group 7, however: these late enrolling full-time attenders at two-year institutions tended to score low on the function. The third function was a slightly less effective discriminator than the second. It focused on lower-SES, higher-achieving, moderate-ability students from larger families, who were found to be especially unlikely to enroll late in two-year institutions (Groups 6 and 7) and especially likely to enroll part-time and late in vocational institutions. Because of the relative weakness of the third function, these results are not presented in a figure.

Conclusions: Evaluating the Original Hypotheses

The findings are best described within the framework of the hypotheses presented earlier. Definite support was found for the "marginality hypothesis" which suggested that students choosing nontraditional enrollment options (i.e., students deferring enrollment, enrolling part-time, or enrolling in non-degree granting institutions) would be those of modest academic preparation, ability, and achievements. Students from nonacademic tracks and students lower in academic ability and grades were especially likely to not enroll or to enroll in a non-degree-granting institution. In addition, less academically gifted and ambitious students who did enroll were especially likely to do so part-time and after some delay. Conversely, students with extensive pre-college coursework and higher in academic ability and grades were especially likely to enroll in a four-year institution, to enroll full-time, and to do so immediately after graduation.

Support was also found for the "socioeconomic context hypothesis", which suggested that nontraditional enrollment may be rooted in class socialization or in pressing financial concerns. Students pursuing nontraditional timing, load, and institutional options tended to be lower in socioeconomic status and larger in family size, although the latter was only a minor discriminator overall.

The "ascriptive hypothesis", which suggested that students may choose nontraditional enrollment options in response to culturally or societally prescribed and proscribed roles, received mixed support. Blacks were especially likely to enroll late, but were especially unlikely to enroll part-time. They were therefore nontraditional on one score (although the race diffrence disappeared once academic factors were added to the model) and quite traditional on the other. In addition, women were especially unlikely to enroll late. Instead, it was the men who more frequently pursued the nontraditional timing option.

The mixed results for the ascriptive hypothesis parallel mixed findings for race and gender in studies of more traditional enrollment patterns (e.g., see Thomas et al, 1979). In fact, it is notable that the results here as a whole generally match those found in earlier research on more traditional enrollment decisions. As in that earlier research, the dominant factors were academic characteristics, socioeconomic characteristics were also important, and the results for race and gender were mixed.

Implications

The study's results suggest that models of nontraditional attendance behaviors deserve further development, specification, and analysis. The academic and socioeconomic hypotheses explored here were supported and seem to merit further attention, but the mixed support for the ascriptive hypothesis is also intriguing and possibly worth further examination. In pursuing further

work, special attention should be paid to dependent variable specification. It is no surprise that the results here suggest some differences in the primary precursors of delayed enrollment, part-time attendance, and enrollment in nontraditional institutions. There are certainly similarities, also, in the precursors of the various nontraditional attendance patterns, but it would be a mistake to view nontraditional enrollment as a simple phenomenon with uniform determinants. Further work also might develop the explanatory model more fully. With explained variance hovering under ten percent for both timing and load, it is clear that much remains to be done. The model might well be improved by the addition of indicators for economic conditions, job experience, and educational expectations and/or aspirations. Finally, the absence of attendance data beyond two years after high school graduation is a weakness in the present analysis which could easily be remedied by employing later waves of the HSB survey.

Ideally, the findings of this and future work on nontraditional enrollments should contribute to improved theoretical understanding of the determinants of educational and occupational attainments in the society: the new, less traditional enrollment trends represent relatively unexplored territory for causally focused analysis. Also, if when, where, and at what courseload level one attends postsecondary education can have significant influences on future attainments, then explorations of factors behind these "hows" of enrollment can inform enduring policy concerns over equality of educational opportunity. Finally, such findings may inform leaders regarding an emerging management issue for higher education, by potentially helping to explicate the dense tangle of "market" factors central to institutional survival and effectiveness.

References

Alexander K. and B. Eckland. High school context and college selectivity: Institutional constraints in educational stratification. Social Forces , 56 , 1977, 166-188.

Alwin, D.F. College effects on educational and occupational attainments. American Sociological Review , 1974, 39 , 210-23.

Astin, A.W., K.C. Green, W.S. Korn, and M. Schalit. The American Freshman: National Norms for Fall, 1986 . Los Angeles: Higher Education Research Institute, 1986.

Begg, C.B. and R. Gray. Calculation of polychotomous logistic regression parameters using individualized regressions. Biometrika , 71 , 1984,, 11-18.

Carnegie Council on Policy Studies in Higher Education, The. Three Thousand Futures: The Next Twenty Years for Higher Education . San Francisco: Jossey-Bass, 1980.

Carnegie Council for the Advancement of Teaching. 1984 National Survey of Undergraduates . New York: Carnegie Council for the Advancement of Teaching, 1985.

Change Magazine . Part-timers: Myths and realities. July/August, 1986, pp. 49-53.

Clark, Burton L. The Higher Education System . Berkeley: California, 1983.

Frances, C. 1986: Major trends shaping the outlook for higher education. AAHE Bulletin , December, 1985, pages 3-7.

Gladieux, L.E. The future of student financial aid. The College Board Review , 1983, Winter, 126, 2-12.

Gladieux, L. and T. Wolanin. Congress and the Colleges: The National Politics of Higher Education . Lexington, Massachusetts: Lexington, 1976.

Hanushek, E.A., and J.A. Jackson. Statistical Methods for Social Scientists . Orlando: Academic Press, 1977.

Harrell, F.E. Jr. and K.L. Lee. A comparison of the discrimination of discriminant analysis and logistic regression under conditions of multivariate normality. Biostatistics: Statistics in Biomedical, Public Health, and Environmental Sciences , edited by P.K. Sen, pages 333-343. New York and Amsterdam: North Holland for Elsevier Science Publishers, 1985.

Hearn, J.C. The relative roles of academic, ascribed, and socioeconomic characteristics in college destinations. Sociology of Education , 1984, 57 , 22-30.

Hossler, D. Enrollment Management: An Integrated Approach . New York: College Board, 1984.

Jackson, G.A. Financial aid and student enrollment. Journal of Higher Education , 49 , 6, 1978, 548-574.

Jackson, G.A. Linear analysis of logistic choices, and vice versa. Paper presented to the Social Statistics Section of the American Statistical Association, Washington, D.C., 1981.

Jackson, G.A. Public efficiency and private choice in higher education. Educational Evaluation and Policy Analysis , 4 , 2, 1982, 237-247.

Karabel, J. Community colleges and social stratification: Submerged class conflict in American higher education. Harvard Educational Review , 42 , 1972, 521-562.

Karabel, J. and A.W. Astin. Social class, academic ability, and college "quality". Social Forces , 1975, 53 , 381-398.

Kohn, M.G., C.F. Manski, and D.S. Mundel. An Empirical Investigation of Factors Which Influence College-Going Behavior . Rand Report R-1470-NSF. Santa Monica, California: Rand Corporation, 1974.

Marini, M.M. The order of events in the transition to adulthood. Sociology of Education , 57 , 1984, 63-84.

National Center for Education Statistics [NCES]. Data Base Documentation for Institutional Characteristics of Colleges and Universities, 1980-81 (IC Survey HEGIS XV) . Washington, D.C.: U.S. Government Printing Office, 1983.

National Center for Education Statistics [NCES]. College attendance after high school. Statistical Highlight . Washington, D.C.: U.S. Government Printing Office, 1984a.

National Center for Education Statistics [NCES]. The Condition of Education . Washington, D.C.: U.S. Government Printing Office, 1984b.

National Center for Education Statistics [NCES]. Trends in college enrollment. Statistical Highlight . Washington, D.C.: U.S. Government Printing Office, 1984c.

National Opinion Research Center [NORC]. Contractor Report, High School and Beyond, 1980 Senior Cohort First Follow-up (1982), Data File User's Manual . Washington, D.C.: U.S. Government Printing Office, 1983.

Olson, L. and R. Rosenfeld. Parents and the process of gaining access to student financial aid for higher education. Journal of Higher Education , 1984a, 55 , 455-480.

Peng, S.S. Changes in postsecondary education: 1972-1980. Paper presented at the annual meeting of the American Educational Research Association, Montreal, March 1983.

Peng, S.S., J.P. Bailey, Jr., and B.K. Eckland. Access to higher education: Results from the National Longitudinal Study of the High School Class of 1972. Educational Researcher , 1977, 6 , 3-7.

Pincus, F.L. The false promises of community colleges: Class conflict and vocational education. Harvard Educational Review , 1980, 50 , 3, 332-360.

Press, S.J. and S. Wilson. Choosing between logistic regression and discriminant analysis. Journal of the American Statistical Association , 1978, 73 , 364, 699-705.

Rosenfeld, R. and J.C. Hearn. Sex differences in the significance of economic resources for choosing and attending a college. In P. Perun (Ed.), The Undergraduate Woman: Issues in Educational Equity , pages 127-157. Lexington, Massachusetts: Lexington (Heath), 1982.

Sewell, W.H. Inequality of opportunity for higher education. American Sociological Review , 1971, 36 , 5, 793-809.

Smart, John C. College effects on occupational status attainment. Research in Higher Education , 1986, 24 , 1, 73-95.

Solmon, L. The definition of college quality and its impact on earnings. Explorations in Economic Research , 2 , 1975, 537-87.

Stadtman, V.A. Academic Adaptations . San Francisco: Jossey-Bass, 1980.

Tinto, V. College origins and patterns of status attainment. Sociology of Work and Occupations , 7 , 1980, 457-86.

Thomas, G.E., K.L. Alexander, and B.K. Eckland. Access to higher education: The importance of race, sex, social class, and academic credentials. School Review , 87 , 1979, 133-156.

Trusheim, Dale and James Crouse. Effects of college prestige on men's occupational status and income. Research in Higher Education , 1981, 14 , 4, 283-304.

U.S. Department of Education. The Condition of Education . Washington, D.C.: U.S. Government Printing Office, 1985.

Useem, Michael and Jerome Karabel. Pathways to top corporate management. American Sociological Review , 1986, 51 , 184-200.

Weisbrod, B. and P. Karpoff. Monetary returns to college education, student ability, and college quality. Review of Economics and Statistics , 5 , 1968, 491-97.

Independent Variable	Logistic Coefficients	
	Background Model	Full Model
Black	.23 *	-.06
Female	-.26 ***	-.20 **
Parental SES	-.35 ***	-.18 **
Family Size	.05	.03
H.S. Academic Track	-	-.35 ***
Tested Ability	-	-.03 ***
High School Grades	-	-.29 ***
Intercept	-1.59	1.82
R-square	.01 ***	.06 ***

Table 1: Logistic Regression: Delayed Attendance vs. Immediate Attendance

Note: The dependent variable indicator is coded such that delayed atendance = 1 and immediate attendance = 0. Data are weighted. Sample n = 5519. *** = $p \leq .001$, ** = $p \leq .01$, * = $p \leq .05$.

Independent Variable	Logistic Coefficients	
	Background Model	Full Model
Black	-.63 ***	-.83 ***
Female	-.02	.04
Parental SES	-.44 ***	-.24 ***
Family Size	.05	.02
H.S. Academic Track	-	-.70 ***
Tested Ability	-	-.02 ***
High School Grades	-	-.18 ***
Intercept	-1.78	.76
R-square	.01 ***	.06 ***

Table 2: Logistic Regression: Part-time Attendance vs. Full-time Attendance

Note: The dependent variable indicator is coded such that part-time attendance = 1 and full-time attendance = 0. Data are weighted. Sample n = 5770. *** = $p \leq .001$, ** = $p \leq .01$, * = $p \leq .05$.

Independent Variable	Non-attenders	Late PI	Immed PI	Late FI	Immed FI
Black (%)	10	7	6	14	8
Female (%)	49	63	53	46	57
Parental SES	-.29	-.05	.08	.04	.20
Family Size	3.02	2.79	2.61	2.74	2.60
H.S. Academic Track (%)	17	30	36	40	60
Tested Ability	46.49	49.36	51.60	50.35	54.12
High School Grades	5.24	5.60	5.88	5.57	6.35
Sample %	39	3	5	7	46

Table 3: Descriptive Data for the Sample, Grouped by Attendance Timing and Courseload Levels

Note: Data are weighted, and are within-group means unless otherwise noted. Sample n = 8464. All univariate F's for differences between the five groups (ANOVA), and the multivariate F (MANOVA), were significant at the $p \leq .001$ level.

Independent Variable	Function 1	Function 2
Black	.17	-.67
Female	.16	.44
Parental SES	.36	-.35
Family Size	-.10	.08
H.S. Academic Track	.43	-.19
Tested Ability	.43	-.11
High School Grades	.37	.53
Canonical R-squared	.28	.01

Table 4: Standardized Discriminant Function Coefficients for the Two Functions Best Discriminating Among the Five Attendance Timing and Courseload Categories

Note: Both of the functions were significant at the $p \leq .001$ level. See text for further details.

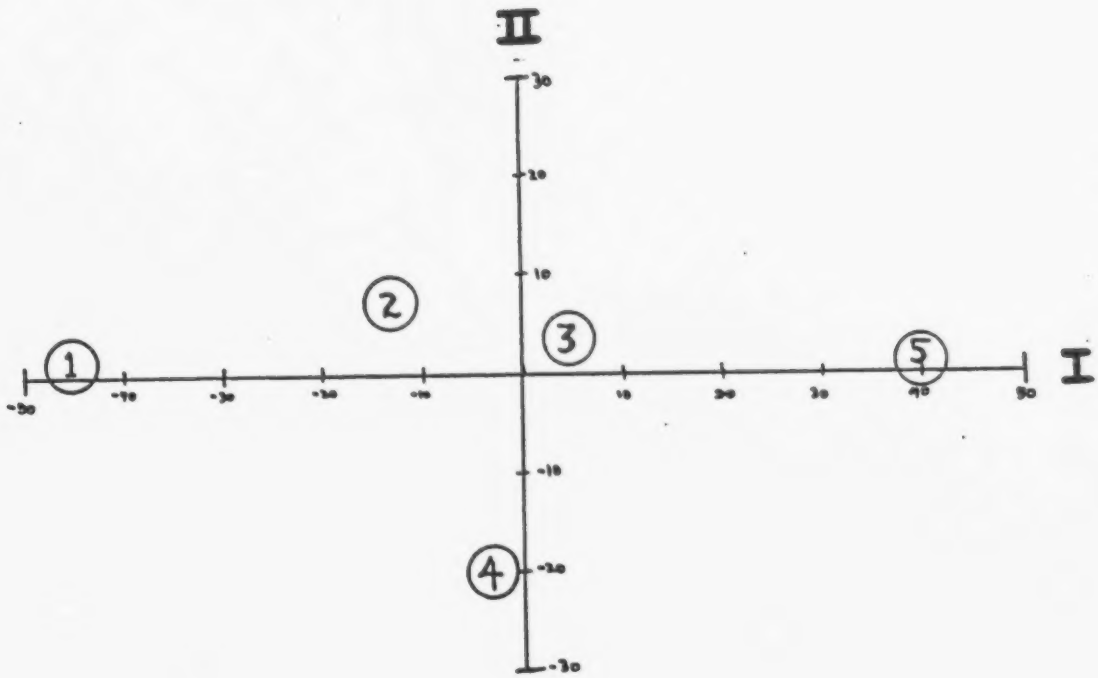

Figure 1: Group Centroids for Primary Functions Discriminating Among the Five Attendance Timing and Courseload Categories

Note: Code: 1 = Non-attenders; 2 = part-time, late attenders; 3 = part-time, immediate attenders; 4 = full-time, late attenders; 5 = full-time, immediate attenders. For ease of interpretation, centroid values are presented x1000. See text for further details.

Independent Variable	Non-attenders	Voc, Late PI	Voc, Late EI	Voc, Immed PI	Voc, Immed EI	2-yr, Late PI	2-yr, Late EI	2-yr, Immed PI	2-yr, Immed EI	4-yr, Late PI	4-yr, Late EI	4-yr, Immed PI	4-yr, Immed EI
Black (%)	10	10	19	9	7	4	14	5	7	13	12	7	9
Female (%)	49	65	55	56	62	66	41	57	58	46	43	43	56
Parental SES	-.29	-.11	-.23	-.20	-.17	.06	.01	.06	.05	-.30	.23	.28	.31
Family Size	3.02	3.05	2.86	2.92	2.94	2.47	2.91	2.53	2.62	3.27	2.57	2.61	2.54
H.S. Academic Track (%)	17	20	18	17	24	38	26	33	40	25	64	55	72
Tested Ability	46.49	46.98	46.05	47.47	48.93	50.45	48.19	51.48	50.83	50.79	54.48	54.31	56.16
High School Grades	5.24	5.77	5.14	5.67	5.74	5.57	5.12	5.79	5.84	5.33	6.12	6.23	6.64
Sample %	39	1	2	1	5	1	2	3	11	a	3	1	30

Table 5: Descriptive Data for the Sample,
Grouped by Attendance Timing, Courseload Levels, and Institutional Type

Note: Data are weighted, and are within-group means unless otherwise noted. Sample n = 8464. a = less than .5%. All univariate F's for differences between the thirteen groups (ANOVA), and the multivariate F (MANOVA), were significant at the $p \leq .001$ level.

Independent Variable	Function 1	Function 2	Function 3
Black	.20	-.40	-.17
Female	.09	.75	-.14
Parental SES	.35	.12	-.61
Family Size	-.08	-.23	.47
H.S. Academic Track	.53	-.42	.15
Tested Ability	.47	-.07	-.22
High School Grades	.38	.28	.77
Canonical R-squared	.38	.01	.01

Table 6: Standardized Discriminant Function Coefficients for the Three Functions Best Discriminating Among the Thirteen Attendance Timing, Courseload, and Institutional Type Categories

Note: Each of the functions was significant at the $p \leq .001$ level. See text for further details.

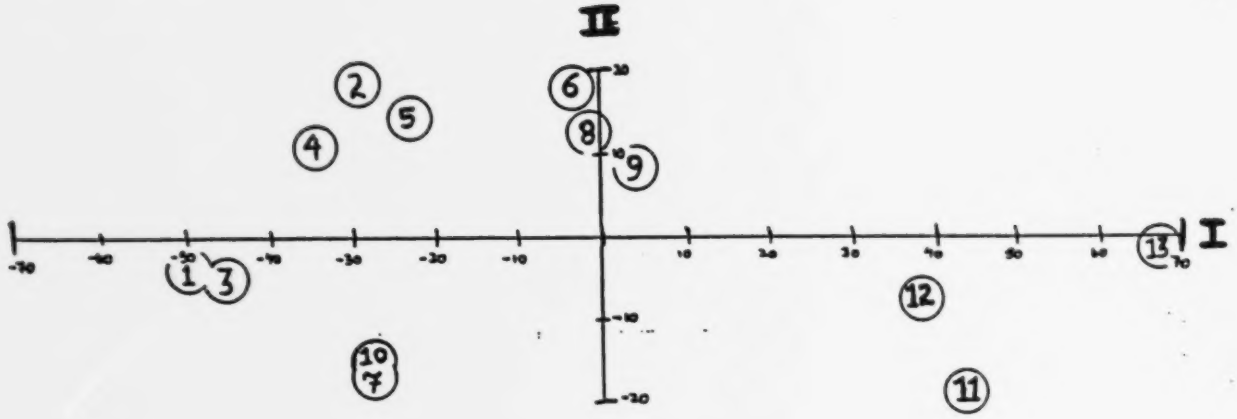

Figure 2: Group Centroids for Primary Functions Discriminating Among the Thirteen Attendance Timing, Courseload, and Institutional Type Categories

Note: Code: 1 = Non-attenders; 2 = part-time, late attenders at vocational institutions; 3 = full-time, late attenders at vocational institutions; 4 = part-time, immediate attenders at vocational institutions; 5 = full-time, immediate attenders at vocational institutions; 6 = part-time, late attenders at two-year institutions; 7 = full-time, late attenders at two-year institutions; 8 = part-time, immediate attenders at two-year institutions; 9 = full-time, immediate attenders at two-year institutions; 10 = part-time, late attenders at four-year institutions; 11 = full-time, late attenders at four-year institutions; 12 = part-time, immediate attenders at four-year institutions; 13 = full-time, immediate attenders at four-year institutions. For ease of interpretation, centroid values are presented x1000. See text for further details.